

PATENT SPECIFICATION

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(54) COUNTERSINKER ASSEMBLY

(71) I, AKE KNUTSSON, of Strandvagen 10, Traryd 280 50, Strömsnäsbruk, Sweden of Swedish nationality, do hereby declare the invention for which I pray that a patent may be granted to me, and the method by which it is to be performed to be particularly described in and by the following statement:—

This invention concerns a countersinker assembly which is to be attached to a spiral fluted drill.

Earlier suggested assemblies of this kind have been difficult to use in practice, since during boring swarf tends to accumulate between the bore hole and the countersinker, so that strong friction may occur and either cause the drill to break or prevent the countersinker from rotating at the same speed as the drill.

The present invention provides a countersinker assembly which is to be attached to a spiral fluted drill, the assembly comprising a holding device having an axial bore to accommodate the drill and being divided longitudinally into two halves, the ends of the holding device being conically formed, a countersinker internally conically formed to fit on one end of the holding device, and a collar internally conically formed to fit on the other end of the holding device, the countersinker and collar having co-operating screw-threads enabling them to be screwed together to urge the holding device into gripping engagement with the drill.

The invention will be further described, by way of example only, with reference to the accompanying drawings, in which:

Figure 1 shows a side view of a countersinker assembly, partly in longitudinal cross-section, attached to a spiral fluted drill;

Figure 2 shows a plan of the arrangement of Fig. 1;

Figure 3 shows a bottom plan of the arrangement of Fig. 1;

Figure 4 shows a side view of the halves of an internal part of the countersinker assembly;

[Price 25p]

Figure 5 shows a bottom plan of the halves of the said part.

The countersinker assembly illustrated in the drawings includes a holding device 3 clamped round a spiral fluted drill 1. The holding device 3 consists of two halves, which are conically formed at their ends and internally provided with axial semi-circular section tracks which accommodate the drill 1. On the bottom of each half of the holding device 3 a swarf diverter 5 is fixed. A countersinker 4 with cutting edges 6 has a conical internal cavity and its upper end is threaded externally. Thus the drill 1 is placed together with the two halves of the holding device 3, in the internal cavity of the countersinker 4, whereafter a pressure collar 2, which is threaded internally at its lower end and conically hollowed at its upper end, is screwed onto the threads of the countersinker. By this means there will be a radially inwards pressure on the conical halves of the holding device and the pressure will increase the more the pressure collar 2 is screwed onto the threads of the countersinker.

The swarf diverters 5 fit in the spiral fluter of the drill and together with the corresponding faces of the countersinker form swarf-diverting channels. On the countersinker each cutting edge 6 extends inwards to an edge 11, to form a shoulder 10 which engages the corresponding cutting edge of the spiral fluter of the drill, so that the cutting edges of the countersinker are in front of the cutting edges of the drill and cannot be displaced relative to the drill as drill turns.

The countersinker 4 is externally provided with flats and also the pressure collar 2 is provided with similar flats 8 so that it can be tightened with the aid of suitable tools.

The pressure which is exerted by the two halves of the holding device 3 on the drill spindle is adjustable by screwing the collar 2 more or less tightly onto the countersinker 4. The swarf diverters may be made springy so that they spring out of the flutes in the drill if the torque applied is excessive and the countersinker slips.

WHAT I CLAIM IS:—

1. A countersinker assembly which is to be
attached to a spiral fluted drill, the assembly
comprising a holding device having an axial
5 bore to accommodate the drill and being
divided longitudinally into two halves, the
ends of the holding device being conically
formed, a countersinker internally conically
formed to fit on one end of the holding de-
10 vice, and a collar internally conically formed
to fit on the other end of the holding device,
the countersinker and collar having cooperat-
ing screwthreads enabling them to be screwed
together to urge the holding device into grip-
15 ping engagement with the drill.

2. An assembly as claimed in claim 1, in
which the halves of the holding device are
each provided with a swarf diverter which

extends into the flutes of the drill, so that a
swarf diverting channel is formed between
the drill and the countersinker.

3. An assembly as claimed in claim 1 or 2
on a spiral fluted drill, in which the cutting
edges of the countersinker precede the cut-
ting edges of the drill.

4. An assembly as claimed in claim 3, in
which the cutting edges of the drill engage
behind shoulders in the countersinker to pre-
vent relative rotation of the drill and counter-
sinker.

5. A countersinker assembly substantially
as described herein with reference to the
accompanying drawings.

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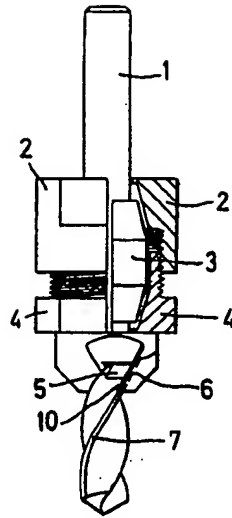


FIG.1.

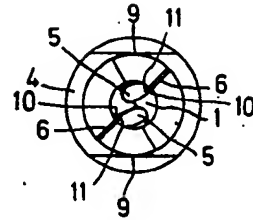


FIG.3.

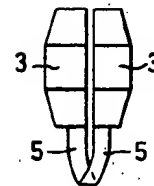


FIG. 4

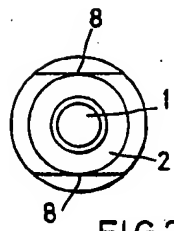


FIG 2



FIG 5